

REMARKS

This responds to the Office Action mailed on March 26, 2004.

Claims 11-19 and 64 are canceled. Claims 3, 4, 7, 9, 63, 68, and 74 have been amended.

Claims 77-90 have been added. Claims 1-9, 63, and 65-90 are now pending in this application.

Amendments To Claims 3, 4, 7, 9 And 63

Claims 3, 4, 7, 9, 63, 68 and 74 have been amended. No new matter has been introduced.

The amendments to the claims are made to satisfy Applicants' preferences, not necessarily to satisfy any legal requirement(s) of the patent laws, and they are not intended to limit the scope of equivalents to which any claim element may be entitled.

In claim 3, "mounts" has been substituted for "is mounted", and "with" has been substituted for "providing".

In claim 4, "includes" has been substituted for "is".

In claim 7, "includes" has been substituted for "made of"; "is" has been deleted; and "wherein the stiffener is to withstand" has been substituted for "and is capable of withstanding".

In claim 9, "adapted" has been deleted.

In claim 63, "power/ground/impedance deliverer (PGID)" has been substituted for "PGID". Support for this amendment may be found, for example, on page 3, line 20 of the original disclosure.

In claim 68, "includes" has been substituted for "is".

In claim 74, "in" has been deleted.

New Dependent Claims 77-90

New dependent claims 77-90 have been added to provide Applicants with additional protection to which Applicants are entitled. New dependent claims 77-90 are supported by the original disclosure. No new matter has been introduced.

Support for the "cooling fins" recited in new claims 77 and 86 may be found, for example, in FIG. 8 and on page 13, at line 5 of Applicants' original disclosure.

Support for the “capacitor” recited in new claims 78, 84 and 90 may be found, for example, in FIGs. 9 and 10 and on page 13, at lines 8-19 of Applicants’ original disclosure.

Support for the “insulator” recited in new claims 79 and 85 may be found, for example, in FIGs. 9 and 10 and on page 13, at lines 9-10, and 18 of Applicants’ original disclosure.

Support for the PGID or package stiffener including at least one of a plurality of power ground sections and a plurality of insulating couplers, as recited in new claims 80 and 87, respectively, may be found, for example, in FIG. 12 and on page 14, at lines 6-9 of Applicants’ original disclosure.

Support for the PGID or package stiffener including a ground path from the die to the substrate, as recited in new claims 81 and 88, respectively, may be found, for example, in FIG. 15 and on page 14, at line 19 to page 15, line 5 of Applicants’ original disclosure.

Support for the package stiffener including a rectangular or rounded frame, as recited in new claims 82 and 83, respectively, may be found, for example, in FIGs. 7 and 11 and on page 14, at lines 3-5 of Applicants’ original disclosure.

Support for the plurality of power pods recited in new claim 89 may be found, for example, in FIG. 12 and on page 14, at lines 6-9 of Applicants’ original disclosure.

Claim Objection

The Examiner objected to claim 74, asserting that it is identical to claim 64. Applicants have canceled claim 64 and respectfully request that the Examiner withdraw his objection.

§103 Rejection Of The Claims

Claims 1, 4-7, 9, 64-66, 68, 70, 74 and 75 were rejected under 35 USC §103(a) as being unpatentable over Dibene, II et al. (U.S. 6,452,113), Dibene ('113), in view of Dibene, II et al. (U.S. 6,452,804), Dibene ('804). The rejection of independent claim 63 was mentioned on page 7 with other rejected claims. Accordingly, Applicants have assumed that claim 63 is also rejected under 35 USC §103(a) as being unpatentable over Dibene ('113) in view of Dibene ('804). Claims 2, 3, 67, 69 and 71-73 were also rejected under 35 USC §103(a) as being unpatentable over Dibene ('113) and Dibene ('804) and further in view of Dehaine et al. (U.S. 5,925,925). Claim 8 was also rejected under 35 USC §103(a) as being unpatentable over Dibene ('113) and Dibene ('804) and further in view of Dehaine et al. and Banks et al. (U.S. 6,015,722).

Claim 76 was also rejected under 35 USC §103(a) as being unpatentable over Dibene ('113) and Dibene ('804) and further in view of Belady (U.S. 6,285,550). These rejections are respectfully traversed.

The Examiner has the burden under 35 U.S.C. §103 to establish a *prima facie* case of obviousness. Applicants respectfully submit that the Office Action did not make out a *prima facie* case of obviousness for the following reasons: (1) There is no suggestion or motivation to combine Dibene ('113) and Dibene ('804) to form what is claimed in independent claims 1, 63, and 76; (2) even if combined, Dibene ('113) and Dibene ('804) fail to teach or suggest all of the elements of Applicants' claimed invention; and (3) Dibene ('113) and Dibene ('804) teach away from Applicants' claims.

(1) There Is No Suggestion Or Motivation To Combine Dibene ('113) And Dibene ('804) To Form What Is Claimed In Claims 1, 63, And 76

A suggestion to combine must come from the prior art and not from Applicants' specification or impermissible hindsight. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicants' disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP §2143. The Examiner must avoid hindsight. *In re Bond*, 910 F.2d 831, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990).

Page 5 of the Office Action states that it would have been obvious to incorporate elements of Dibene ('113) with elements of Dibene ('804), so that the mechanical coupling and the component support can be improved in Dibene's ('113) package. However, Dibene ('113) does not suggest that the "mechanical coupling or component support" of Dibene ('113) needs improvement. In fact, Dibene ('113) at Col. 10, line 11 states "This frame 1202, when connected to the heatsink 1006 and subsequently connected to a stiffener board 1206 or motherboard and held together by fastener springs 1204, forms a three dimensional enclosure...". Accordingly, there is no motivation, and no suggestion to look to Dibene ('804) for "mechanical coupling and the component support" for Dibene ('113). Therefore, the suggestion to combine is from impermissible hindsight, and the Action lacks motivation to combine Dibene ('113) and Dibene ('804).

(2) Even If Combined, The Cited References Fail To Teach Or Suggest All Of The Elements Of Applicants' Claimed Invention

Applicants respectfully submit that the Office Action did not make out a *prima facie* case of obviousness, because even if Dibene ('804) and Dibene ('113) were combined, they fail to teach or suggest all of the elements of Applicants' claimed invention. M.P.E.P. §2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

The Action is silent with regard to "...a PGID disposed upon the die-side of the substrate..." as claimed in claim 63, and with regard to "...a package stiffener disposed upon the die-side of the substrate..." as claimed in claim 76. Accordingly, the Examiner has not made out a *prima facie* case of obviousness for claims 63 or 76. Moreover, neither Dibene ('804) nor Dibene ('113) discloses, teaches or suggests the subject matter of claims 63 and 76.

(3) Dibene ('113) And Dibene ('804) Teach Away From Applicants' Claims

Motivation to combine or modify the prior art is lacking when the prior art teaches away from the claimed combination. A reference teaches away, when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path the applicant took. *In re Gurley*, 27 F.3d 551, 31 USPQ 2d 1130, 1131 (Fed. Cir. 1994); *United States v. Adams*, 383 U.S. 39, 52, 148 USPQ 479, 484 (1966); *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244 (C.C.P.A. 1969); *In re Caldwell*, 319 F.2d 254, 256, 138 USPQ 243, 245 (C.C.P.A. 1963).

Dibene ('113) teaches away from Applicants' claims, because it teaches the motherboard is a stiffener board. Dibene ('113) at Col. 10, line 11 states "This frame 1202, when connected to the heatsink 1006 and subsequently connected to *a stiffener board 1206 or motherboard* and held together by fastener springs 1204, forms a three dimensional enclosure..." (emphasis added).

A person skilled in the art, upon reading Dibene ('113), would be led to use the motherboard as a stiffener board, which is a totally different path from the one that the Applicants took. The motherboard/stiffener board of Dibene ('113) is not "...mounted at a perimeter of the substrate..." as claimed in claim 1. Nor is the motherboard/stiffener board of

Dibene ('113) "...disposed upon the die-side of the substrate..." as claimed in independent claims 63 and 76. Nor does the motherboard/stiffener board of Dibene ('113) "...deliver low-inductance current to the die, via the substrate..." as claimed in claims 1, 63 and 76.

Accordingly, independent claims 1, 63, and 76 are patentably distinguishable from Dibene ('113) and Dibene ('804).

Claims 2-9, 78, 81-82, 84, 86, 88, and 89, which depend directly or indirectly from claim 1 and incorporate all of the limitations therein, are also asserted to be allowable for the reasons presented above, and Applicant respectfully requests notification of same.

Claims 65-75, 77, 79-80, 83, and 85 which depend directly or indirectly from independent claim 63 and incorporate all of the limitations therein, are also asserted to be allowable for the reasons presented above, and Applicant respectfully requests notification of same.

Claim 87 depends directly from independent claim 76 and incorporates all of the limitations therein. Claim 87 is also asserted to be allowable for the reasons presented above, and Applicant respectfully requests notification of same.

Additional Elements and Limitations

Applicants consider additional elements and limitations of claims 1-9, 63, and 65-89 to further distinguish over the cited references, and Applicants reserve the right to present arguments to this effect at a later date.

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

Serial Number: 09/964586

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Title: ARRANGEMENTS TO SUPPLY POWER TO SEMICONDUCTOR PACKAGE

Assignee: Intel Corporation

Page 12

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Conclusion

Applicants respectfully submit that claims 1-9, 63, and 65-89 are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicants' attorney, Lucinda Price (located in Gainesville, Florida), at (352) 373-8804, or Applicants' below-named representative (located in Minneapolis, Minnesota) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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Date May 26, 2004

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 26th day of May 2004.

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Name

Signature

